FRBSF Weekly Letter

Number 91-31, September 13, 1991

The Gulf War and the U.S. Economy

Wars generally stimulate aggregate demand in an economy, and hence output and employment in the short run, because of greater government spending. In contrast, upward shocks to oil prices generally are believed to have an immediate contractionary effect on output and employment of countries importing oil, as real consumer spending declines.

Iraq's invasion of Kuwait and the ensuing Gulf War combined both a war and an oil shock. As military forces were mobilized and deployed, the price of oil temporarily doubled. This *Weekly Letter* discusses the positive and negative effects of the Gulf War on U.S. real GNP using a structural macroeconometric model.

Expansionary effects

Government spending. The most obvious effect of the Gulf war on the U.S. economy was the extra stimulus given to demand from government spending. The incremental costs of the Gulf war to the United States were largely covered by contributions from our allies. Some of these contributions were in-kind, which obviously would not have altered the demand for U.S. goods and services. But the remaining cash contributions and associated spending by the U.S. military had an effect similar to ordinary debt-financed government spending.

According to Data Resources, the extra Defense Department purchases of goods and services attributable to the Desert Shield and Desert Storm operations rose from 0.2 percent of real GNP in 1990.Q4 to 0.5 percent in 1991.Q2. In real dollars (1982 dollars at annual rates) this amounts to $7.5 billion in 1990.Q4 and $22.4 billion in 1991.Q2. Military expenditures in this period would have been greater, except that much of the military equipment was supplied from inventories. Some of these inventories will be replaced later this year and next, showing up in the form of higher government spending in the future.

Oil imports and oil profits. During the war oil prices temporarily doubled, as supplies from Kuwait and Iraq were shut off and the market speculated about the future availability of oil. Many users of oil drew down their inventories instead of importing oil at temporarily high prices. We estimate that oil imports were reduced by $19.0 billion in 1990.Q4 and $14.6 billion in 1991.Q1, in real dollars, due to this speculative effect. Ordinarily a reduction in oil imports would raise GNP as a result of the stimulus given to domestic production. But in this case a reduction in inventory accumulation offset the effect of lower imports on GNP.

At the same time, high oil prices increased the profits earned abroad by U.S. oil companies. Such profits are treated in the GNP accounts as the export of a service because they are a payment for the use of capital. We estimate that these oil profits amounted to $8.0 billion in 1990.Q4 and $9.0 billion in 1991.Q1, in real dollars. Thus, the effect of the war on oil profits boosted real GNP in the United States.

Contractionary effects

Foreign GNP growth. Weaker growth abroad exerted a contractionary effect on U.S. real GNP by slowing the growth of exports. Since our major trading partners also are oil importers, they also suffered a negative oil shock. But since they did not experience the same expansionary effects from military spending as the U.S. did, the negative effect of the oil price shock dominated in their economies. Real GNP growth in our major trading partners dropped in 1990.Q4 and 1991.Q1, but then began to recover in 1991.Q2. This slowdown in growth was relatively mild. For example, overall growth in the group of 10 countries other than the United States remained positive, and thus as a group these countries did not experience a recession. In the absence of the war there would have been no oil price shock, and real economic growth in our trading partners, on average, probably would have continued at its recent pace. We estimate that by 1991.Q2 the flow of U.S. real exports was $16 billion, or 2½ percent, lower than it would have been if foreign output had not slowed.

Consumer confidence and incomes. A second contractionary effect of the Gulf War was on consumer confidence and real incomes. Higher oil prices had the effect of reducing the purchasing power of household incomes, which in turn tended to reduce consumer spending of all kinds in real terms. But besides this income effect, there was also an adverse effect of the war on consumer confidence, and hence spending on consumer durables and housing.

Consumer confidence, as measured by the University of Michigan survey, dropped by 28 percent between the second and fourth quarters of 1990, and then recovered over half of its previous decline by 1991.Q2. Research at this bank (see FRBSF *Weekly Letter* of July 19, 1991) has shown that survey measures of consumer confidence importantly affect expenditures on consumer durables and housing. Normally, however, consumer confidence is driven by movements in economic variables, and movements in confidence that are not associated with these variables usually have little or no influence on household expenditures. The economic variables that appear to have the most significant influence on consumer confidence are the overall inflation rate, changes in oil prices, and changes in the unemployment rate.

But the Gulf War appears to be the "exception that proves the rule." Consumer confidence dropped significantly more than could be explained by these economic variables, and the "unexplained" portion of the drop in confidence appears to have had a significant impact on expenditures on consumer durables and housing. Consequently, we include in the effect of the Gulf War not only the impact of higher oil prices on consumer confidence, but also the "unexplained" portion of the drop in consumer confidence. (The impact that the Gulf War had on consumer confidence through its effect on inflation and unemployment is determined through the econometric model's estimate of the effects of the war on those variables.)

Business Confidence. In recessions, the ratio of inventories-to-sales usually rises because producers are slow to cut back their inventories when sales decline. The recession during the Gulf War was different, however, in that inventory-to-sales ratios generally fell. Thus, the ratio of real nonfarm inventories to real final sales dropped fairly steadily from 2.43 in 1990.Q2 to 2.36 in 1991.Q2; and the ratio of real retail inventories to real goods consumption was approximately 2.75 from 1990.Q2 through 1990.Q4, and then fell to 2.36 in 1991.Q2.

Widely publicized declines in consumer confidence and analysts' dire predictions of the war's effects led businesses to anticipate future declines in sales. This prevented any rise in the overall inventory-to-sales ratio. The result was somewhat similar to the 1980 recession when the imposition of credit controls also led business to anticipate reductions in sales, producing only a slight increase in inventory-to-sales ratios.

The inventory equation in the macroeconometric model that is used for estimating the effects of the Gulf War developed significant overpredictions of nonfarm inventory investment beginning in 1990.Q4, even though it had predicted past cyclical turns in inventory investment quite well. Therefore, these errors in the model's predictions are attributed to the effects of the Gulf War on expectations of business (and also to temporarily lower petroleum imports, as discussed earlier). Similar errors in the model's predictions of business fixed investment also began to develop in 1990.Q4, as expectations of falling sales led firms to postpone plans for capital expansion. These too are attributed to the war.

Net effect of the Gulf War

The effect on U.S. real GNP of these various influences was estimated using a structural macroeconometric model. It was assumed that the Fed conducted monetary policy to maintain the same path for U.S. short-term interest rates as actually occurred. One could have assumed alternatively the same path as actually occurred for some monetary aggregate, such as M2. However, over a short four-quarter period the results would be fairly similar.

Chart 1 shows the impact on U.S. real GNP of each of these influences taken separately. Government spending and the effect of the war on oil imports and oil profits had expansionary effects, but the effects of foreign real GNP, consumer confidence and incomes, and business confidence (including the speculative decline in oil inventories) were contractionary. The adverse effects on consumers and on business were particularly large, together reducing U.S. real GNP by over $100 billion, in 1982 dollars, by 1991.Q1.

Chart 1
Estimated Impacts of Gulf War on Real GNP

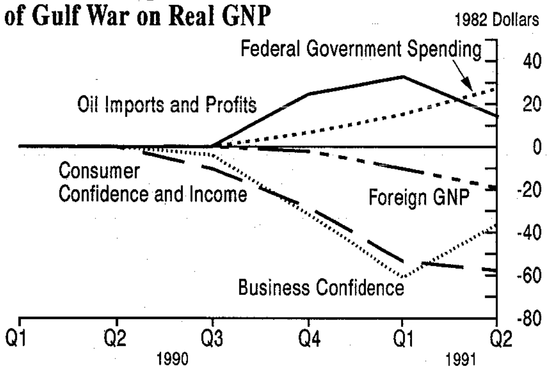
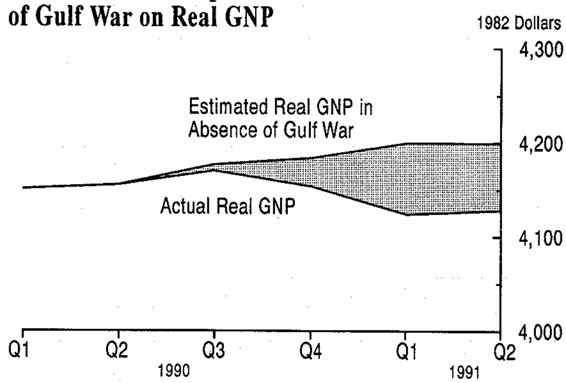


Chart 2 shows the estimate of the path of U.S. real GNP in the absence of the Gulf War. This is obtained by removing all of the expansionary and contractionary influences of the war on GNP that are shown in Chart 1. As can be seen in Chart 2, it is estimated that in the war's absence growth would have been slow, but there would not have been a recession. Instead of declining at a 1.6 percent annual rate in 1990.Q4, it is estimated that real GNP would have grown at a 0.7 percent rate; and instead of falling at a 2.8 percent rate in 1991.Q1 it would have advanced at a 1.5 percent rate. In 1991.Q2 it would have dropped at a 0.5 percent rate instead of a 0.1 percent rate.

Chart 2
Total Estimated Impact of Gulf War on Real GNP



Had the war not occurred, real growth would have been sluggish, at a 1.4 percent rate in the last half of 1990 and a 0.8 percent rate in the first half of 1991. As a result, the civilian unemployment rate would have risen from 5.3 percent in 1990.Q2 to 6.2 percent in 1991.Q2, but not as high as the actual 6.8 percent figure. The 5.3 percent unemployment rate was associated with a labor market that was generating upward pressure on inflation. Consequently, a temporary period of slow growth would have kept demand within the bounds of the economy's capacity to produce and helped to keep inflation in check.

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The *FRBSF Weekly Letter* appears on an abbreviated schedule in June, July, August, and December.